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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER

PATHAK, SUDHANSHU C

ART UNIT PAPER NUMBER

2611

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/024,048

Applicant(s)

FRENKEL, LIRON

Examiner

Sudhanshu C. Pathak

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on June 23rd, 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-22 is/are allowed.
- 6) ☒ Claim(s) 23-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on December 14th, 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>June 12, 2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-to-33 are pending in the application.

Response to Arguments

2. Applicant's arguments, regarding Claims 1-22, filed on June 23rd, 2006, have been fully considered and are persuasive. The rejection of the claims has been withdrawn.
3. Applicant's arguments with respect to claims 23-33 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 23-28 (method) & 29-33 (apparatus) are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant Admitted Prior Art (AAPA) in view of Bourlas et al. (2006/0126549 A1).

Regarding to Claims 23-25 & 29-31, the AAPA discloses a method for bi-directional communication, comprising: transmitting single-carrier signals comprising data symbols between first and second Digital Subscriber Line (DSL) modems including single-carrier (SHDSL) over a communication channel in upstream and downstream direction: within respective upstream and downstream transmission spectra that are at least partly mutually overlapping (Fig.'s 1-2 & Specification, Page

3, lines 18-30). The AAPA further discloses that the noise level at the customer premise equipment (CPE) is lower than the noise at the central office (CO) (Specification, Page 4, lines 19-22). However, AAPA does not disclose setting different, respective upstream and downstream bit-loading rates in bits/symbol for the symbols in the upstream and downstream directions, responsive to conditions on the channel.

Bourlas disclose setting different, respective upstream and downstream bit-loading rates in bits/symbol for the symbols in the upstream and downstream directions, responsive to conditions on the channel (Paragraph's 24-25 & 41)

{Interpretation: Bourlas discloses communication between two modems over a communications channel implementing adaptive modulation wherein depending on the channel conditions the modulation density (bits per symbol) are varied}.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Bourlas discloses implementing adaptive modulation for communications between modems and this can be implemented in the method as described in the AAPA so as to determine the optimal bit-loading rates for communication in the upstream and downstream directions so as to provide robust and reliable communication between modems satisfying the desired BER of the communication, in varying channel conditions.

Regarding to Claims 26-28 & 32-33, the AAPA in view of Bourlas discloses a method for transmitting single carrier signals between two DSL modems wherein setting different bit-loading for upstream and downstream wherein further the bit

loading upstream is lower than the loading for the downstream and the noise at the customer premise equipment (CPE) is lower than the noise at the central office (CO) as described above. The AAPA further discloses setting the communication rate to be a maximum value rate in the range that meets a signal-to-noise ratio (SNR) margin criterion at a selected baud rate (Specification, Page 1, Background of Invention, lines 1-12 & Specification, Page 2, lines 1-15 & Specification, Page 3, lines 1-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that AAPA in view of Bourlas satisfies the limitations of the claims. Furthermore, there is no criticality in selecting the baud rate of the upstream and downstream to be substantially the same rate and using the minimum of the upstream or downstream baud rates and using a standard modulation scheme this is a matter of design choice.

Allowable Subject Matter

6. Claims 1-22 are allowable over the prior art of record.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, it is recommended to the applicant to amend all the claims so as to be patentable over the cited prior art of record. A detailed list of pertinent references is included with this Office Action (See Attached "Notice of References Cited" (PTO-892)).
8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

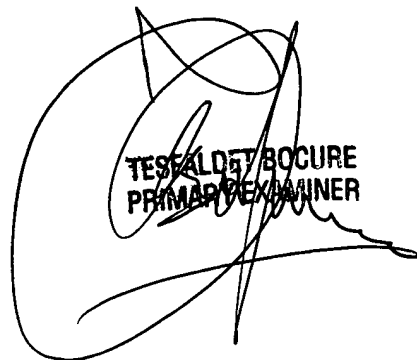
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhanshu C. Pathak whose telephone number is (571)-272-3038. The examiner can normally be reached on M-F: 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571)-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sudhanshu C. Pathak
Examiner
Art Unit 2611



TESTED/BOCURE
PRIMARY EXAMINER